

VI. *On the Economy of a new Species of Saw-fly.* By JOHN CURTIS, Esq., F.L.S. &c.

Read January 15, 1850.

THE general attention which is now paid to Natural History almost daily brings to light some hidden treasure to interest the public and satisfy the inquiring mind. The subject of this communication appears to be one of these novelties, for a knowledge of which I am indebted to a friend who has lately been admitted a Fellow of the Linnean Society.

The insect alluded to belongs to the family *Tenthredinidæ*, a group of *Hymenoptera* so different in œconomy from the rest of that Order, that some entomologists have been inclined to separate it from the aculeate families. In general habits the Saw-flies resemble the *Lepidoptera* in their second or larva-state, usually feeding on the leaves of plants; but there are many instances of their living on the pith in the stems of shrubs*, in fruit †, and evidence is not wanting to lead to an opinion that some are parasitical ‡, whilst others form galls §.

It is not my intention now to enter farther upon these curious anomalies, but to give the œconomy and descriptions of the species before us, which I propose naming, in honour of its captor, Viscount Goderich,

SELANDRIA ROBINSONI.

On the 19th of June, 1848, Lord Ripon's gardener at Putney, Mr. Joseph Jerwood, sent me, by the request of Lord Goderich, forty or fifty caterpillars the size of those figured, which for two years had devoured the leaves of the Solomon's Seal; eating enormous holes in them, and leaving only portions of the fibres, as exhibited in the drawing (fig. 1). During the present year Lord Goderich forwarded to me the following memoranda:—

“Three years ago (1846), about the month of July, I observed that the *only* plant in our garden of Solomon's Seal (*Convallaria multiflora*, L.) was completely covered and almost entirely devoured by larvæ, which I easily perceived must belong to the family of *Tenthredinidæ*. They had at that time almost consumed the entire membrane of the leaves, and many of them were even feeding on the stalks. In a short time after, they had eaten the plant nearly to the ground, leaving only the stronger branches. They did not appear to touch any of the surrounding flowers or foliage, but upon the Solomon's Seal they were extremely numerous, amounting I should think on one small plant to full one hundred.

“The next year they re-appeared in the same numbers, and then, being much struck by

* Dr. Maclean has discovered a larva in the succulent shoots of rose-trees, which may possibly be the offspring of *Emphytus varipes*, a species I have reared from the stems of dog-roses.

† I have found the larvæ of *Selandria testudinea*? feeding in apples, and of *S. Morio* in plums.

‡ *Dielocerus Ellisii*, Linn. Trans. vol. xix. p. 249.

§ *Nematus intercus* causes the rosy galls on willows.

the circumstance, I sent you some specimens, which I believe were dead before you got them, owing to your absence from home. Last year they again appeared, and I then sent you those from which you have so fortunately been able to obtain the perfect fly.

"I have not, as you know, been much at this place of late years, and therefore it is possible they may have existed here before 1846; but I am sure when I was more at Putney, from 1840 to the end of 1843, there were none of them to be found, although the plant was then in the same place as at present. They have never killed the plant, although they have often eaten up all its leaves and tender fibres. It is now the 8th of June, and none have as yet shown themselves this spring."

By a subsequent letter, however, I find that on the 14th Lord Goderich noticed them, but in smaller numbers than in previous years.

The caterpillar has 22 legs, viz. 6 pectoral, 14 abdominal, and 2 small anal feet: it is of a pale greyish green, shagreened, with very narrow transverse folds, and there is a slight tint of ochre about the fourth segment and towards the tail, with an indistinct greyish line down the back: the head and six horny pectoral legs are deep black and shining: there is a double row of minute black dots down the back, formed of short spiny tubercles, with a row of similar dots down each side, as well as along the spiracles, which are black, and the folds of the thighs are freckled with minuter spines (2, 2): the trunk or fore-part looks dilated when viewed from above; these larvæ were nearly $\frac{3}{4}$ of an inch long on the 28th of June, when many of them had cast their last skins, which were left sticking to the leaves (fig. 3), and they disappeared in succession, burying themselves from 2 to 4 inches deep in the earth, where they formed small oval cocoons like a coating of glue, but often perforated in places (fig. 4).

In the present year I had the satisfaction of breeding a male fly on the 30th of April; on the 3rd of May another hatched, and also two females, and these were succeeded by several more of the latter sex which emerged from their tombs. They were as black as ink, and appear to be allied to *Selandria fuliginosa* of Schrank; but the male antennæ approach those of *Cladius*, and altogether these Saw-flies are different from any I have seen. The entire body is shining black; the male being smaller than the female (fig. 11): the head is transverse, with two lateral *eyes*, and three *ocelli* on the crown, forming a slightly depressed triangle (fig. 5): the mouth (fig. 6) is composed of a semicircular, ciliated *labrum* (*a*), of two bifid *mandibles* (*b, b*), of two elongated *maxillæ* (*c, c*), towards the extremities of which are attached long, slender, pubescent *palpi*, composed of six joints, the basal one short, the remainder tolerably equal in length (figs. *d, d*): the *mentum* is small, producing a nearly orbicular, tripartite, membranous *labium* (fig. *f*); from the superior angles of the chin arise the short *labial palpi*, which are stout, pubescent and 4-jointed, the third and fourth joints the stoutest, the latter slightly notched at the apex (figs. *g, g*). *Antennæ* 9-jointed; those of the male (fig. 7) are nearly as long as the body, filiform and densely ciliated internally; the basal joint is short and ovate; second subglobose; third elongated, clavate, the following rather longer; the apical joint slender, incurved and pointed: in the female they are nearly as long, but more slender, and not ciliated, but pilose: the *abdomen* is elongate-ovate and the apex bilobed in the male; stouter and conical in the female, the testaceous *ovipositor* being received into a groove beneath: the ample

wings are entirely black, with the costa and stigma thickened and darker, as well as the nervures, the surface being iridescent; the *superior* (fig. 8) have two marginal and four submarginal cells; the first minute, the second twice as large, the other two very large, the third receiving the transverse nervures which divide the marginal and discoidal cells; the *inferior* have only one discoidal cell (fig. 8*): the *legs* are moderately stout and pubescent; the tibiae are spurred at the apex, the spur of the anterior pair notched at the apex; tarsi 5-jointed, the first four lobed beneath; the last joint terminated by two bifid testaceous claws and simple pulvilli (fig. 9).

Although the elongated antennæ of this *Selandria* resemble those of *Nematus*, and still more those of *Cladius*, this species is not only distinguished from those genera by the divided marginal cell, but the heavy habit of the females especially shows at once the groups to which it is naturally allied, and these affinities are supported by its trophi, which are intermediate between *Athalia*† and *Tenthredo*‡. I may observe that the number of discoidal cells in the inferior wings varies in the species of *Selandria*, a character hitherto unnoticed, but which may supply admirable distinctions for reducing the genus into sections. 1st, Those with two discoidal cells, the marginal cell receiving one transverse nervure, of which *S. serva*, Fab., is an example (fig. 13). 2ndly, *S. stramineipes*, Klug, in which both transverse nervures are united with the marginal one (fig. 14). 3rdly, Those with one discoidal cell, as shown in *S. Robinsoni* (fig. 8*); and 4thly, Those having no discoidal cell, as in *S. fuliginosa*, Schr. (fig. 15). The variations in the position of the nervures and the magnitude of the cells will also be found very useful in identifying the species; and although occasionally the nervures are not symmetrical, and occasionally the recurrent ones are wanting, such exceptions will not invalidate the divisions I have traced, but will, I trust, lead to a more careful investigation of this fine and interesting family.

EXPLANATION OF THE PLATE.

TAB. V.

[Obs. Those figures with a * attached are magnified.]

Fig. 1. A portion of the stem of *Convallaria multiflora*, as eaten by the larvæ of *Selandria Robinsoni*.

Fig. 2, 2. The larvæ feeding in two different skins.

Fig. 3. One of the skins cast off and sticking to a leaf.

Fig. 4. The cocoon, with the end opened by the fly when it hatched.

Fig. 5*. Head of the male viewed above.

Fig. 6*. The trophi or mouth.

Fig. a*. The *labrum* or upper lip.

Fig. b, b*. The two *mandibles* or jaws.

Fig. c, c*. The two *maxillæ*.

† Curtis's Brit. Ent. fol. & pl. 617.

‡ *Ibid.* fol. & pl. 692.

Fig. *d, d**. The two *palpi* or feelers.

Fig. *f**. The *labium* or under lip arising from the *mentum* or chin.

Fig. *g, g**. The two *palpi* attached to the *mentum*.

Fig. 7*. *Antennæ*, or horns of the male.

Fig. 8*. Superior wing of *Selandria Robinsoni*.

Fig. 8* Inferior wing of ditto.

Fig. 9*. A fore-leg of ditto.

Fig. 10. Natural dimensions of the male fly.

Fig. 11*. The female, represented flying.

Fig. 12. Natural dimensions of that sex.

Fig. 13*. Inferior wing of *Selandria serva*, Fab.

Fig. 14*. Inferior wing of *Selandria stramineipes*, Klug.

Fig. 15*. Inferior wing of *Selandria fuliginosa*, Schr.

Belitha Villas, Barnsbury Park,

November 1849.